CLAIMS

1. A method for ranking services in a web services architecture having a hierarchy of services (401, 406, 408, 410) with a root originating service requestor (401), a service of a first level in the hierarchy calling a service of a lower level, the method comprising:

the originating service requestor (401) indicating a preference regarding one or more services and a ranking machine (405) having a choice algorithm based on the preference;

the originating service requestor (401) invoking services of one or more levels of hierarchy;

at each level of the hierarchy, a service using a directory (411) to find a set of possible lower-level services; and

the ranking machine (405) applying the choice algorithm to the set of possible lower-level services.

2. A method as claimed in claim 1, wherein the lower-level services are service requestors or service providers.

3. A method as claimed in claim 1 or claim 2, wherein the set of possible lower-level services is referred to the ranking machine (405) from the directory (411) and a preferred sequence is returned by the ranking machine (405) to the directory.

4. A method as claimed in claim 3, wherein the step of referring to the ranking machine (405) is not visible to the service using the directory (411).

5. A method as claimed in claim 1 or claim 2, wherein the set of possible lower-level services is sent by the service using the directory (411) to the ranking machine (405) and a preferred sequence is returned by the ranking machine (405) to the service.

6. A method as claimed in any one of the preceding claims, wherein a single result or a sequence of results is returned to the service using the directory (411).

7. A method as claimed in any one of the preceding claims, wherein lower-level invocations of services in the hierarchy are not visible to higher-level services.

8. A method as claimed any one of the preceding claims, wherein the preference of the originating service requestor (401) ranks services in an order in which the originating service requestor (401) wishes to use the services, excludes services from being used, and/or provides other selection influencing criteria.

9. A method as claimed in any one of the preceding claims, wherein the preference of the originating service requestor (401) is based on quality of service criteria including cost, efficiency, speed and reliability.

10. A method as claimed in any one of the preceding claims, wherein where there is an originating service requestor's preference, the preference overrides a selection by the service using the directory (411).

11. A method as claimed in any one of the preceding claims, wherein if the preferred service is not available, a subsequent service is obtained by reference to the originating service requestor's preference.

12. A method as claimed in any one of claims 1 to 9, wherein if there is no stored originating service requestor's preference, the service using the directory (411) makes the selection.

13. A web services architecture comprising:

a root originating service requestor (401);

a hierarchy of services (401, 406, 408, 410) in which a service of a first level calls a service of a lower level;

a directory (411) for finding services in the hierarchy;

a ranking machine (405) with means for applying a choice algorithm for services based on the originating service requestor's preference regarding one or more services;

wherein, at each level of the hierarchy, the directory (411) provides a set of possible services and the ranking machine (405) applies the choice algorithm to provide a sequence of preferred services.

14. A web services architecture as claimed in claim 13, wherein the lower-level services are service requestors or service providers.

15. A web services architecture as claimed in claim 13 or claim 14, wherein the ranking machine (405) is connected to the directory (411) by a port (412) and the set of possible services is referred to the ranking machine (405) by the directory (411) and the sequence of preferred services is returned to the directory (411) by the ranking machine (405).

16. A web services architecture as claimed in any one of claims 13 to 15, wherein a service of a first level finds a service of a lower level by means of a UDDI directory (411).

17. A web services architecture as claimed in claim 16, wherein the ranker machine (405) has a port (412) on the UDDI directory (411) and processes flows turning TModel bags into a selected set of TModels.

18. A web services architecture as claimed in claim 16 or claim 17, wherein each UDDI operation is referred to the ranking machine (405) and returned as a sequence conforming with the service requestor's preference.

19. A web services architecture as claimed in any one of claims 16 to 18, wherein underlying UDDI application code carries out the referral and appends the location of the ranker machine (405) to subsequent XML flow.

20. A computer program product for a web services architecture having a hierarchy of services (401, 406, 408, 410) with a root originating service requestor (401), a service of a first level calling a service of a lower level, comprising computer readable program code means for performing the steps of:

the originating service requestor (401) indicating a preference regarding one or more services and a ranking machine (405) having a choice algorithm based on the preference;

the originating service requestor (401) invoking services of one or more levels of hierarchy;

at each level of the hierarchy, a service using a directory (411) to find a set of possible lower-level services; and

the ranking machine (405) applying the choice algorithm to the set of possible lower-level services.